

Compliance with the international code of marketing of breast milk substitutes: Can physicians protect the code?

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ABSTRACT

Background: The International code of marketing of mother's milk substitutes was adopted following the reports on the general decline in the prevalence of breastfeeding worldwide. This topic gains the attention of the Saudi authority that implementing the Saudi regulations code of marketing mother's milk substitutes. **Research aims:** To determine the prevalence of exposure to mother's milk substitute products marketing among family medicine and pediatric physicians through key channels such as health facilities, media, and direct contact with companies. **Methods:** A cross-sectional study, survey-based, with a sample of family medicine physicians and pediatricians working at King Saud University Medical city from February 2021 to May 2021. The researchers adopted the health facilities module of the monitoring tool established by The World Health Organization to monitor adherence to the code. **Results:** Out of 131 participants, 31.3% (n=41) reported that the personnel from companies had contacted them. The direct visit was the most prevalent means (67.2%, n=88). Promotional, Informational, or educational materials and Samples of formula milk/other baby food products were prevalent. The company representatives popularly offered to sponsor events/workshops for health facilities/ staff, 43.5% (n=57). There is a significant lack of knowledge and training among the participants regarding the national and the international code of marketing mother's milk substitutes. **Conclusion:** There is a significant degree of non-compliance to the code of Marketing of mother's milk Substitutes among breast-milk substitute products manufacturers. The study recommends training the physicians about implementing the code of marketing mother's milk substitutes.

Keywords: Compliance; International Code of Marketing of Breast-milk Substitutes; Saudi Arabia; violations; World Health Organization; breastfeeding.

1. INTRODUCTION

Since 1981, The International code of marketing of mother's milk Substitutes (International code) aiming to protect one of the infants and Children's rights, which is Breastfeeding, and to bar the marketing, sampling, or recommending

any mother's milk substitutes for the general population or health worker (World Health Organization, 1981). Moreover, prohibit advertising of complementary foods for infants less than six months of age. By 2004, the Saudi code of marketing committee of mother's milk substitutes was formed to review and update the rules (Rollins et al., 2016). Mother's milk is a natural, renewable, and complete food source during the first six months of life, fulfilling all an infant's nutritional requirements (Grace et al., 2018). Appropriate breastfeeding practice can prevent 823 000 annual deaths in children younger than five years (Victora et al., 2016). Mother's milk's beneficial effects on maternal and child health are well recognized due to its immunological and anti-inflammatory beneficial properties (Vieira Borba et al., 2018); mother's milk can protect both mothers and children against various illnesses and diseases. It is protective, particularly from otitis media, gastroenteritis, and respiratory tract infections in children and diabetes mellitus, breast, and ovarian cancers in mothers (Tshering et al., 2019). Also, breastfeeding improves the bonding between a mother and her newborn and avoids the cost of purchasing infant formula (Al-Nuaimi et al., 2017).

The WHO Code of marketing breast-milk substitutes (BMS) was adopted following the reports on the general decline in the prevalence of breastfeeding in many parts of the world (Vinje et al., 2017). The Code is a global public health policy framework that restricts BMS marketing and encourages proper use through informed choice (Ching et al., 2021). The violations of the code are prevalent worldwide, and a high percentage of health care providers reported a lack of knowledge of the Code (Caicedo-Borrás et al., 2021; Hernández-Cordero et al., 2019; Hidayana et al., 2017).

Research on breastfeeding and marketing of mother's milk Substitutes in Saudi Arabia to date is limited (Ahmed & Salih, 2019). This topic gains the attention of the national authority that implementing the Saudi Code of executives regulations of marketing of mother's milk Substitutes (Saudi Ministry of Health, 2019). This study aimed to determine the prevalence of exposure to mother's milk substitute products marketing among family medicine and pediatric physicians through key channels such as health facilities, media, and direct contact with companies.

2. METHODS

Research Design

A cross-sectional study, survey-based, was conducted between February 2021 to May 2021 among physicians who work as Family physicians or Pediatricians at King Saud Medical City. Inclusion criteria were all full-time Family physicians or Pediatricians involved in maternal and infant care. The exclusion criteria consisted of physicians at King Saud Medical City who are part-time or not involved in maternal and infant care. Nurses, pharmacists, technicians, and rotating Interns were excluded. Institutional Review Board (IRB) approval was obtained from the College of Medicine Institutional Review Board (20/0715/IRB, Project No. E-20-5206, Date: 11 October 2020).

Setting and Relevant Context

The researchers conducted this study through a web-based survey among eligible physicians who workin the primary care service of King Saud Medical City, family medicine, and pediatric outpatient services to provide care to infants and their families. King Saud Medical City is an academic multi-disciplinary facility with general and subspecialty medical services that provides primary services to citizens and residents and other services and home healthcare programs.

Sample

A simple random sample technique was used. The sample size was calculated by using the equation of $n = N \cdot X / (X + N - 1)$, Where $X = Z_{\alpha/2}^2 \cdot p \cdot (1-p) / MOE^2$, and $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (e.g., for a confidence level of 95%, α is 0.05, and the critical value is 1.96), MOE is the margin of error, p is the sample proportion, and N is the population size. Hidayana et al., (2017) reported the prevalence of violation of the mother's milk substitute products code among physicians as 25%. Thus, the sample size was calculated to be 119 physicians.

Measurement

WHO established a Global Network for Monitoring and Support for Adherence to the Code (Net-Code) to monitor and enforce the national Code legislation and regulations (World Health Organization, 2017). Net-Code has developed a monitoring protocol. It includes several modules; one of the modules is the mothers and health facilities module.

This module includes assessing the prevalence of interactions between health professionals and representatives of companies that sell relevant products, familiarity with the international Code of marketing of mother's milk substitutes, national laws, or regulations on mother's milk substitutes' marketing inquiry about receiving any training in this regard. This tool is available at

WHO open access for academic and research purposes. Minor changes were made for relevance to the study population. The researchers conducted a pilot study to ensure clarity. It was done on twenty physicians before starting the study and was not included in the sample.

Data Collection

The survey was conducted from February 2021 till May 2021. The researchers distributed an anonymous survey link to the eligible participants with an electronic informed consent at the first section of the online survey. Possible subjects were required to confirm their acceptance to participate prior moving forward to the other sections. Section one included an explicit informed consent indicating the purpose of this research and the participant's right to withdraw at any time without any obligation towards the study team.

Section two includes demographic data and general questions about receiving contact from mother's milk substitutes companies and the common mean. The third section was about the observed promotional activities of the company's representatives. The fourth section was about sponsoring scientific activities by these companies. The fifth section was about the participants' knowledge about the international code of marketing mother's milk substitutes. The sixth section was about the knowledge about the national law of marketing such products. The seventh section was about participants' training experience about breastfeeding and the international marketing code of mother's milk substitutes. Anonymous responses were stored in a password-protected data file. The survey required about ten minutes to complete.

Data analysis

Data were analyzed using SPSS Statistics (v. 26.0). The researchers used descriptive statistics (mean, standard deviation, frequencies, and percentages) to describe the quantitative and categorical variables.

3. RESULTS

Characteristics of the Sample

A total of 131 family medicine physicians and pediatricians were included in the analysis. About 51.1% (n=67) of participants were females, and 48.9% (n=64) were male participants. Distributing the study participants based on their age revealed that those who aged less than 35 years constituted two-thirds of the total study participants (64.1%, n=84), whereas the rest of the participants were distributed on the age categories 36 to 45 years, 46 to 55 years and more than 55 years as they constituted 16.8%, 7.6%, and 11.5%, respectively. Majority of the participants were Saudi (84%, n=110). Of the participants surveyed, 55% (n=72) were married, 42% (n=55) were single, 3% (n=4) were divorced or widowed, and 50.4% (n=66) had children. Regarding the clinical position of the participants, 53.4% (n=70) were residents, 31.3% (n=41) were consultants, and 15.3% (n=20) were specialist/Registrar/Assistant or Associate Consultant. Representation of family medicine was 53.4% (n=70), whereas 46.6% (n=61) of pediatric department (Table 1).

Table 1 Sociodemographic characteristics of the Study Participants (N=131)

Variable	N	%
Gender		
Male	64	48.9%
Female	67	51.1%
Age		
Less than 35	84	64.1%
36 – 45	22	16.8%
46 – 55	10	7.6%
More than 55	15	11.5%
Nationality		
Saudi	110	84%
Non-Saudi	21	16%
Parental status		
Yes	66	50.4%
No	65	49.6%
Marital Status		

Single	55	42%
Married	72	55%
Widowed or		
Divorced	4	3%
<hr/>		
Clinical position		
Consultant	41	31.3%
Specialist	20	15.3%
Resident	70	53.4%
<hr/>		
Specialty		
Pediatric	61	46.6%
Family Medicine	70	53.4%

Participants Observations about Marketing Behaviors

Of the participants surveyed, 31.3% (n=41) reported that they had been contacted by the personnel, whereas 68.7% (n=90) were not. Direct visits were the most prevalent means of contacting the study participants (67.2%, n=88), followed by phone and social media, as they scored 20.6% (n=27). The least used contacting mean was E-mail, which was used among only 15.3% (n=20). The informational/educational material was the most prevalent distributed material, as indicated by 85.5% (n=112) of the study participants. Of the participants surveyed, 40.5% (n=53) reported that promotional materials of specific products were the distributed material for mothers and caregivers by personnel from organizations selling baby foods or other requirements. Moreover, about 32.1% (n=42) reported that only Samples of formula milk/ other baby food products were the distributed materials, and 19.1% (n=25) reported that gifts were the only distributed materials. In addition, about 13.7% (n=18) of the study participants reported that the personnel from mother's milk substitute companies distributed coupons. Finally, forty-six participants (35.1%) reported that personnel distributed gifts from companies that sell baby foods and other requirements such as bottles, or teats (Table 2).

Exploring the participants' responses regarding the type of material provided for the use of health facilities/staff revealed that 44.3% (n=58) reported that information/educational materials were distributed for health facilities and staff. However, 40.5% (n=53) reported that Promotional materials of specific products were the dominant type of the distributed material for the use of health facilities and staff. In addition, the results showed that gifts were reported as the material distributed for the use of health facilities and staff by 19.8% (n=26). Finally, a total of 103 participants (78.6%) reported that no material was distributed for the use of health facilities and staff (Table 2). Moreover, 79.4% (n=104) of the study participants reported that the company's representative usually seeks direct contact with hospital/clinic staff, whereas 23.7% (n=31) reported that mothers, caregivers, and hospital staff were the main target of contact by the company's representative. In addition, 11.5% (n=15) reported no knowledge about the targeted contact party of the company's representative.

Furthermore, Sponsored events or workshops for health facility/ staff were the most offered by the company representatives as indicated by 43.5% (n=57) of the study participants, followed by Invitation and/or supporting the healthcare workers to participate in events/workshops outside the health facility as reported by 32.8% (n=43), then the free supplies of baby milk/ other baby food products as reported by 26.7% (n=35) (Table 2). The least reported offers were donations of equipment, as indicated by only 11.5% (n=15). However, about 48.9% (n=64) of participants reported no knowledge about the offers presented by the company's representatives. Of the participants surveyed, 75.6% (n=99) reported attending health professional conferences and scientific meetings, whereas 24.4% (n=32) did not attend this kind of conference and scientific meetings. Among those who attended, only 11.1% (n=11) responded positively that any of these conferences/meetings sponsored by manufacturers of baby milk or other baby food products, whereas 60.6% (n=60) reported that these conferences and scientific meetings are not sponsored by manufacturers of baby milk or other baby food products. About a third of the participants, i.e., 28.3% (n=28), do not know these conferences and scientific meetings (Table 2).

Table 2 Frequencies and Percentages of The Participants' Responses Regarding the Mother's Milk Substitute Promotional Behaviors

Variable	N	%
Have any personnel from companies that sell baby foods, bottles, or teats reached out to you or other staff in your facility?		
Yes	41	31.3%
No	90	68.7%
How did the company usually contact you or others?*		
Direct visit	88	67.2%
E-Mail	20	15.3%
Phone	27	20.6%
Social Media	27	20.6%
Did not contact me	28	21.4
Type of material provided for distribution for mothers and caregivers by the personnel from companies*		
Promotional materials of specific products	53	40.5%
Informational/educational materials	112	85.5%
Samples of formula milk/ other baby food products	42	32.1%
Gifts	25	19.1%
Coupons	18	13.7%
None	46	35.1%
Type of material provided for use of health facilities/staff by the personnel from companies*		
Promotional materials of specific products	53	40.5%
Informational/educational materials	58	44.3%
Gifts	26	19.8%
None	103	78.6%
The company's representative usually seeks direct contact with:*		
Hospital/Clinics staff	104	79.4%
Mothers (and other caregivers); Hospital/Clinics staff	31	23.7%
I do not know	15	11.5%
The company usually representative make offers:*		
Donations of equipment	15	11.5%
Sponsored events or workshops for health facility/ staff	57	43.5%
Free supplies of baby milk/ other baby food products	35	26.7%
Invitation and/or support for staff to attend events/workshops outside the health facility	43	32.8%
I do not know	64	48.9%
How many times did the company contact you or others?		
0 times	70	53.7%
1- less than 4 times	47	35.8%
4 – 8 times	10	7.5%

more than 8 times	4	3.0%
In the last two years, have you attended any health professional conferences or scientific meetings?		
Yes	99	75.6%
No	32	24.4%
If the answer is yes, did any of these conferences/meetings sponsored by manufacturers of baby milk or other baby food products?		
Yes	11	11.1%
No	60	60.6%
I do not know	28	28.3%

* Multiple responses were allowed

Physicians' knowledge about national and international code of marketing mother's milk substitutes

The majority of the participants (87%, n=114) reported being unfamiliar with the "international code of marketing of mother's milk substitutes" (Table 3). Only 17.6% (n=23) were "familiar with the national laws or regulations on the marketing of mother's milk substitutes". Exploring the participants' knowledge about the statements allowed under the "international code of marketing of mother's milk substitutes" showed that accurate information on safe formula preparation on all labels was correctly indicated by 48.1% (n=63) as an allowed statement, followed by using a formula with safe preparation, for babies who need it as indicated by 45% (n=59). Whereas the promotion to parents: advertising, free formula samples as misreported as allowed by 22.1% (n=29) of the study participants. Only 4.6% (n=6) wrongly reported that the statement "Promotion of sweetened condensed milk for infants" is allowed. Only 7.6% (n=10) reported that all statements are allowed under the international marketing code of mother's milk substitutes. About 8% (n=11) did not know whether the statements are allowed under the "international code of marketing of mother's milk substitutes" or not (Table 3).

Table 3 Results Related to The Physicians' Knowledge Regarding the National and International Code of Marketing Mother's Milk Substitutes

Are you familiar with the "international code of marketing of mother's milk substitutes"?	N	%
Yes	17	13%
No	114	87%
Are you familiar with the national laws or regulations on the marketing of mother's milk substitutes?		
Yes	23	17.6%
No	108	82.4%
Which of the following sentences do you think it is Allowed under the code?		
Accurate information on safe formula preparation on all labels	63	48.1%
Promotion to parents: advertising, free samples of formula	29	22.1%
Promotion in health facilities: posters, free formula, gifts	25	19.1%
Sponsorship of scientific meetings by companies selling foods for infants and young children	21	16%
Promotion of sweetened condensed milk for infants	6	4.6%
Use of formula with safe preparation, for babies who need it	59	45%

Promotion of feeding bottles and teats.	18	13.7%
All of them	10	7.6%
I do not know	11	8.4%

Participants' training experience on the regulations on the marketing of breast-milk substitutes

Of the participants surveyed, 48.1% (n=63) received breastfeeding training and young child feeding. Most of them (96.8% n=61) received the training between 2015 and 2020. Most of the participants, 98.5% (n=129), did not receive training on "the international code of marketing of mother's milk substitutes". Similarly, most of the participants, 96.9% (n=127), did not receive training on national laws or regulations on the marketing of mother's milk substitutes (Figure 1 & Table 4).

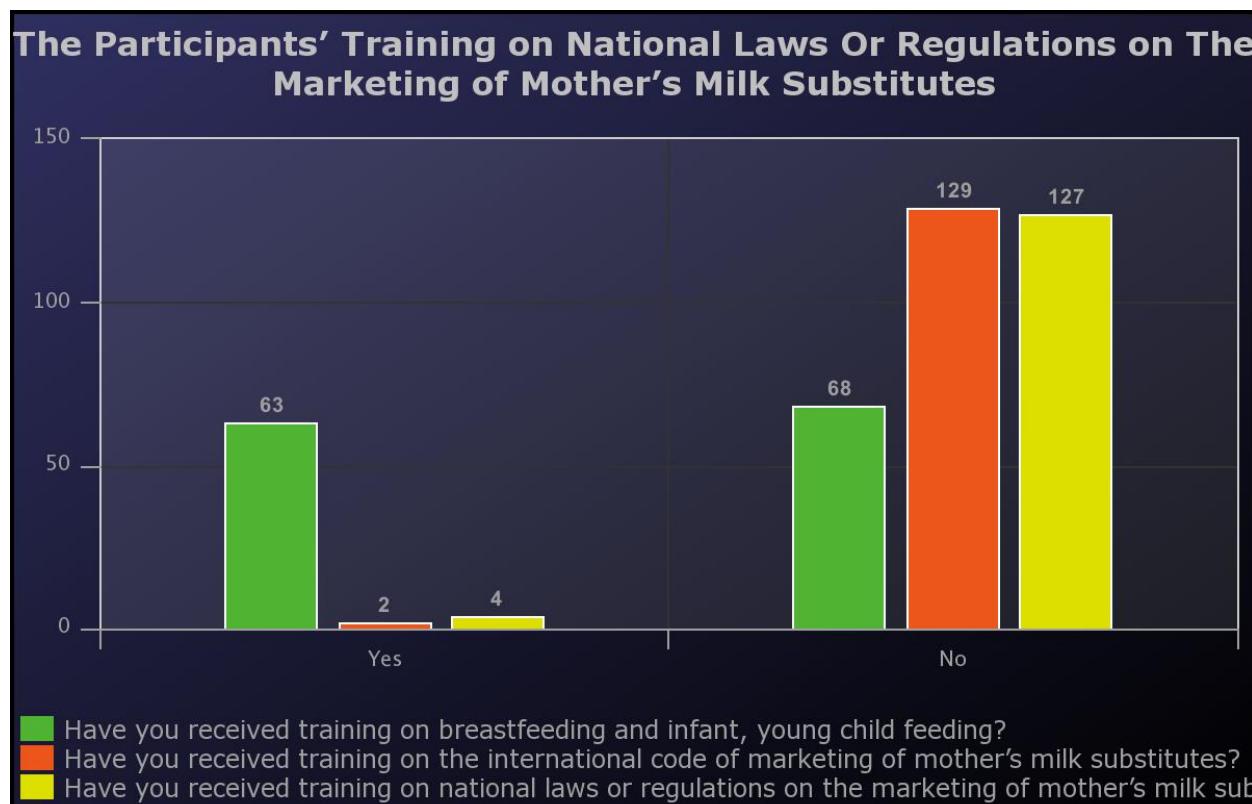


Figure 1 The participants' training on national laws or regulations on the marketing of mother's milk substitute

Table 4 The Participants' Training on National Laws or Regulations on The Marketing of Mother's Milk Substitutes

Statement	N	%
Have you received training on breastfeeding and infant, young child feeding?		
Yes	63	48.1%
No	68	51.9%
Year of training		
Before 2015	2	3.2%
2015 – 2021	61	96.8%
Have you received training on "the international code of marketing of mother's milk substitutes"?		
Yes	2	1.5%
No	129	98.5%

Have you received training on national laws or regulations on the marketing of mother's milk substitutes?

Yes	4	3.1%
No	127	96.9%

4. DISCUSSION

The international code of marketing of mother's milk substitutes was adopted in 1981 by the World Health Assembly (World Health Organization, 1981). This code has two major aims; to protect and promote breastfeeding. Also, ensure the proper use of mothers' milk substitutes when needed (World Health Organization, 1981). It is not anti-formula, not anti-mothers milk substitutes, but it is a code about marketing for optimal health for babies and mothers (World Health Organization, 1981). The code covers several topics; the content of informational/educational materials as to what they should include and what they should not include; the advertising of these products within the context of the code and the relation to the general public, it addresses samples and gifts as they should not be given to mothers or healthcare providers, addresses the role of the healthcare systems and the responsibilities that they have, the role of manufacturers and distributors and the product labels (World Health Organization, 2017).

According to the national code of marketing of mother's milk substitutes in Saudi Arabia, whoever is found to have violated any of the provisions of this code, which manufactures, imports, or distributes mother's milk substitutes from individuals, institutions, or companies, shall be punished with one or more of the prescribed penalties (Warnings, financial fines, and closure of the facility) (Saudi Ministry of Health, 2019). In addition, this national code aims to provide safe, appropriate nutritional needs for infants through the protection and promotion of breastfeeding and by ensuring the correct use of breast-milk substitutes when needed based on appropriate awareness, through appropriate marketing and distribution methods (Saudi Ministry of Health, 2019). About two-thirds of the study participants were not reached by any employees from companies selling baby foods and other requirements. This result might be referred to the legislations stated in the adopted codes of marketing of mother's milk substitutes that prohibits advertising for any milk substitutes or using the healthcare facilities for promotional purposes as stated in article five of the executive regulations (Saudi Ministry of Health, 2019).

Despite that, the physicians reached by the employees and representatives from companies selling baby food, bottle, or teat products reported that direct visits were the most used communication channel used by that personnel. For example, (Hidayana et al., 2017) reported that about a quarter of the health workers received visits from company representatives. Also, (Caicedo-Borrás et al., 2021) reported that 20% of health care workers were contacted by at least one representative, either by a visit (91%) or by telephone (9%). Furthermore, the study results revealed that about one-third of the study participants were contacted by the companies once to four times, almost similar to Hidayana et al., (2017) findings of one to six visits from company representatives in six months. Thus, the results might be referred to the marketing strategies and plans used by companies selling baby food, bottle, or teat products that are less likely to rely on phone or mail contact. In addition, these results are supported by the findings reported by (Forsyth, 2013), which indicated a non-compliance to the WHO code among the companies producing Breast-milk Substitutes when performing promotional campaigns.

According to the sixth article of the executive regulations adopted in Saudi Arabia, companies' representatives can distribute educational and informational material. However, they cannot perform direct visits unless under strict circumstances, including getting permission from the healthcare facility and conducting these visits during non-official working hours. This could be why the companies' representatives use different means such as social media platforms to contact and distribute the promotional material to the healthcare workers. This was proved by the study findings, which revealed that promotional materials and informational brochures were the most prevalent material received via social media platforms by the physicians from the personnel from companies that sell baby foods, bottles, or teats. Significantly, internet use and mobile platforms have increased in low- to middle-income countries, which are excellent platforms for the mother's milk substitutes marketing complex to regulate or monitor (Pereira-Kotze et al., 2020).

The findings related to the mother's milk substitute personnel's contact preferences revealed that they usually seek to contact the hospital/clinic staff. These might be marketing strategies that target the most influential or decision-making individuals, physicians, and other healthcare workers who directly deal with mothers and babies. This result was evidenced by (Piwoz & Huffman, 2015), who reported that breast-milk substitute companies are provided for free through physicians' channels in maternity facilities due to the influence of physicians and other healthcare workers on mothers. In addition, (Baranowska et al.,

2020) reported that women in maternity facilities indicate that healthcare professionals, especially physicians, were among the people recommending breast-milk substitutes. Similarly, (Caicedo-Borrás et al., 2021) reported that health professionals told 30.9% of mothers that they could feed their child any food/drink other than breastmilk before six months of age.

Sponsored events or workshops were the most prevalent offers provided by the company representatives, as indicated by the study participants. This might be attributed to delivering information by breast-milk substitutes and promoting any product easily performed for groups in such events as specialists and healthcare workers. These findings are similar to the outcome reported in the UNICEF-UK guidelines for working with “the international code of marketing mother’s milk products”, which state that company representatives should have restricted access within the healthcare facilities when promoting the company products (United Kingdom Committee for UNICEF (UNICEF UK), 2019). This was evidenced by (Hickman et al., 2021), who reported that advertising for events with clarified sponsorship information was the most significant marketing practice that companies promoting breastmilk substitutes adopted. In addition, it was reported by (Brady, 2012) that the monopoly of pharmaceutical companies and companies that manufacture breast-milk substitutes for conferences and their transformation into conferences for advertising, at the expense of accurate scientific content, which negatively affects the level of knowledge and practice of health practitioners.

Although about two-thirds of the study participants had attended specialized conferences and workshops, a low percentage of these professional conferences or scientific meetings were sponsored by baby milk manufacturers or other baby food products. This might be referred to those manufacturers of baby milk or other baby food products that rarely or annually hold scientific meetings, given that most of the study participants are residents, this means having a lower probability of attending a significant number of specialized conferences, or meetings were sponsored by manufacturers of baby milk or other baby food products. Exploring the participants’ knowledge regarding “the international or national codes of marketing of mother’s milksubstitutes” found that most participants are unfamiliar with the codes. This might be attributed to the lack of implementing the articles of the code and the deficiency in enhancing healthcare workers’ knowledge and awareness about the national and “international codes of Marketing of mother’s milksubstitutes”. About half of the study participants did not receive any professional training on breastfeeding and infant, young child feeding, or any training on the national and “international code of marketing of mother’s milk substitutes”, which is significantly reflected by their knowledge level about the items stated in the executive regulations of both codes.

The lack of healthcare workers’ knowledge and practice of guidelines related to the international or national codes of marketing of mother’s milksubstitutes was reported in different research studies. For example, (Gavine et al., 2016) reported a significant lack of training and knowledge regarding breastfeeding among healthcare workers. In Saudi Arabia, article 12 of the national code of marketing mother’s milk substitutes stated that all healthcare facilities should take the proper precautions to ensure the effective implementation and protection of breastfeeding through providing effective consultation, information, and training the healthcare professionals in this field (Saudi Ministry of Health, 2019). The items in article 12 stressed that the Saudi Commission for Health Specialties (SCFHS), which was established in 1992 by Royal Order to set standards for health practices and accreditation in Saudi Arabia, should compel healthcare practitioners in maternal and childcare to adopt the training curriculum as hours of continuing education and training for specialists and include them in training programs. Training certified lactation consultants with a more defined role in Saudi health institutes can protect breastfeeding in the Saudi community (Alyousefi, 2021). The recent announcement of establishing the Saudi breastfeeding association is an example of ongoing efforts on the right track to educate both health care providers and mothers (Alyousefi, 2021).

Limitations

Several limitations might limit the generalization of the findings. Among these limitations, the geographical limitations, which included sampling one facility and focusing on one geographical district. This could be non-representative for all healthcare workers involved directly or indirectly with pediatric and family care of babies and mothers in Saudi Arabia. Therefore, recruiting a diversified sample through sampling different healthcare facilities might significantly provide more accurate and reliable findings. Moreover, a second limitation is the lack of previous findings related to the prevalence of exposure to marketing the mother’s milk substitute products through key channels, making it difficult to establish a baseline for assessing the present study’s findings.

5. CONCLUSION

Pediatricians and family physicians are significantly exposed to marketing the mother’s milk substitute products through different channels, mainly the direct visits, which revealed a degree of non-compliance to the national and international codes of marketing of mother’s milk Substitutes among products manufacturers. The researchers recommend increasing the knowledge and awareness

of Saudi pediatric and family medicine physicians regarding the content and implementation of breast-milk Substitutes' national and international marketing codes by conducting periodical educational and mandatory training sessions and a monitoring system. Face-to-face structured interviews as qualitative assessment can add more information about physicians' experience of violating the code and how to protect breastfeeding.

Key Messages

There is a significant degree of non-compliance to Breast-milk Substitutes' national and international marketing codes among mother's milk substitute product manufacturers.

Direct visits to physicians were the most prevalent means of marketing the milk substitute products manufacturer.

There is a significant lack of knowledge and training among the physicians about the national and the international code of marketing breast milk substitutes.

Mandatory training of the physicians who participated in infant health care is recommended.

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Authors' contributions

Both authors conceptualized and designed the study, assisted in data collection, supervised data entry, carried out the initial analyses, drafted the initial manuscript, reviewed, and revised the final manuscript. Both authors read and approved the final manuscript.

Conflicts of interest

The authors declare that they have no conflict of interest.

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Data and materials availability

All data associated with this study are present in the paper.

REFERENCES AND NOTES

1. Ahmed AE, Salih OA. Determinants of the early initiation of breastfeeding in the Kingdom of Saudi Arabia. *Int Breastfeed J* 2019; 14:13.
2. Al-Nuaimi N, Katende G, Arulappan J. Breastfeeding Trends and Determinants: Implications and recommendations for Gulf Cooperation Council countries. *Sultan Qaboos Univ Med J* 2017; 17(2):155-161.
3. Alyousefi NA. Determinants of Successful Exclusive Breastfeeding for Saudi Mothers: Social Acceptance Is a Unique Predictor. *Int J Environ Res Public Health* 2021; 18(10):5172.
4. Baranowska B, Doroszewska A, Sys D, Kiersnowska I, Aleksandrowicz A, Bernatowicz-Łojko U, Rabijewski M, Kajdy A, Wesolowska A. Promotion of Human Milk Substitutes in the Opinion of Mothers of Young Children. *J Food Nutr Res* 2020; 8(7):329-336
5. Brady JP. Marketing breast milk substitutes: problems and perils throughout the world. *Arch Dis Child* 2012; 97(6):529-532.
6. Caicedo-Borrás R, Díaz A, Bertha J, Silva-Jaramillo KM, Rivas Mariño G. Violations of the International Code of Marketing of Breastmilk Substitutes (WHO Code) in two Ecuadorian cities. *Nutrition* 2021; 87-88:111206.
7. Ching C, Zambrano P, Nguyen TT, Tharaney M, Zafimanjaka MG, Mathisen R. Old Tricks, New Opportunities: How Companies Violate the International Code of Marketing of Breast-Milk Substitutes and Undermine Maternal and Child Health during the COVID-19 Pandemic. *Int J Environ Res Public Health* 2021; 18(5):2381.
8. Forsyth S. Non-compliance with the International Code of Marketing of Breast Milk Substitutes is not confined to the infant formula industry. *J Public Health (Oxf)* 2013; 35(2):185-190.

9. Gavine A, MacGillivray S, Renfrew MJ, Siebelt L, Haggi H, McFadden A. Education and training of healthcare staff in the knowledge, attitudes and skills needed to work effectively with breastfeeding women: a systematic review. *Int Breastfeed J* 2017; 12:6.
10. Grace D, Domínguez-Salas P, Alonso S, Lannerstad M, Muunda EM Ngwili NM, Omar A, Khan M, OtoboE. The influence of livestock-derived foods on nutrition during the first 1,000 days of life. *ILRI Research* 2018; 44: 1-85.
11. Hernández-Cordero S, Lozada-Tequeanes AL, Shamah-Levy T. Violations of the International Code of Marketing of Breast-milk Substitutes in Mexico. *Matern Child Nutr* 2019; 15(1):12682.
12. Hickman N, Morgan S, Crawley H, Kerac M. Advertising of Human Milk Substitutes in United Kingdom Healthcare Professional Publications: An Observational Study. *J Hum Lact* 2021; 8903344211018161.
13. Hidayana I, Februhartanty J, Parady VA. Violations of the International Code of Marketing of Breast-milk Substitutes: Indonesia context. *Public Health Nutr* 2017; 20(1):165-173.
14. Pereira-Kotze C, Doherty T, Swart EC. Use of social media platforms by manufacturers to market breast-milk substitutes in South Africa. *BMJ Glob Health* 2020; 5(12):003574.
15. Piwoz EG, Huffman SL. The Impact of Marketing of Breast-Milk Substitutes on WHO-Recommended Breastfeeding Practices. *Food Nutr Bull* 2015; 36(4):373-386.
16. Rollins NC, Bhandari N, Hajeebhoy N. Why invest, and what it will take to improve breastfeeding practices?. *Lancet* 2016; 387(10017):491-504.
17. Saudi Ministry of Health. Breast Milk Substitutes Marketing Saudi Code Executives Regulations. 2019. <https://www.moh.gov.sa/Ministry/Rules/Documents/050.pdf>
18. Tshering D, Gurung MS, Wangmo N, Pelzom D. Knowledge attitude and practice of exclusive breastfeeding among breastfeeding mothers in Trongsa district, Bhutan. *Bhutan Health J* 2019; 5 (1), 21-25.
19. United Kingdom Committee for UNICEF (UNICEF UK). Working within the International Code of Marketing of Breast milk Substitutes: A guide for health workers. 2019; <https://www.unicef.org/babyfriendly/baby-friendly-resources/international-code-marketing-breastmilk-substitutes-resources/guide-to-working-within-the-code/>
20. Victora CG, Bahl R, Barros AJ, França, GV, Horton, S., Krasevec, J., Murch, S., Sankar, MJ, Walker, N., & Rollins, NC. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet* 2016; 387(10017):475-490.
21. Vieira Borba V, Sharif K, Shoenfeld Y. Breastfeeding and autoimmunity: Programing health from the beginning. *Am J Reprod Immunol* 2018; 79(1).
22. Vinje KH, Phan LTH, Nguyen TT, Henjum S, Ribe LO, Mathisen R. Media audit reveals inappropriate promotion of products under the scope of the International Code of Marketing of Breast-milk Substitutes in South-East Asia. *Public Health Nutr* 2017; 20(8):1333-1342.
23. World Health Organization. International code of marketing of breast-milk substitutes. World Health Organization. 1981.
24. World Health Organization. NetCode toolkit: monitoring the marketing of breast-milk substitutes: protocol for periodic assessments. 2017.